

REMARKS

Reconsideration of this application as amended is respectfully requested.

Claims 21-34 are cancelled thereby overcoming the rejections under 35 USC Section 112, second paragraph.

Newly presented claim 39 recites a piston ring having an outer annular contact surface extending between opposite side faces of the piston ring. A first portion of the contact surface is recited as being made up of a base metal of the piston ring and a remaining second portion of the contact surface is recited as being made up of a vapor deposition coating. The contact surface is further recited as merging into each of the side faces at sharp 90° edges that are free of bevels. Claim 39 further recites the first portion of the contact surface as having a machined or ground surface finish and the second vapor deposition coating portion of the contact surface as being unmachined or unground and at essentially the same surface level as that of the first portion.

As discussed in the background and summary of invention sections, the difficulty with past coating practices is the in order to have a desirable hard vapor deposited coating on a piston ring, it was necessary to bevel the ring edges in order to avoid chipping the coating which is brittle by nature. However, it is also desirable to have sharp edges, and so an alternative solution was to use a lesser quality coating that could be machined or ground to develop the sharp edges.

The present invention presents a solution to achieve the best of both worlds – vapor deposited coating material *and* sharp edges. This is achieved by selective grinding or machining only a portion of the ring in a manner which results in the claimed piston ring. Neither Beyer, Anderson or Ishida, alone or in combination, achieves the piston ring construction recited in claim 39. Anderson and Ishida both use beveled edges. Beyer uses a thermal spray process that enables grinding of the entire surface, including the coating. There is no teaching or suggestion as to how or why a person of ordinary skill in the art would modify these teachings in a way to arrive at the claimed invention. As such, it is respectfully submitted that claim 39 is allowable.

Newly submitted Claim 47 recites a method of forming a coated piston ring in accordance with the objectives noted above. In particular, claim 47 recites first forming a recess in the outer surface of the piston ring, then vapor depositing a coating and thereafter machining or grinding only the portion adjacent the recess to yield an uncoated base metal portion of the piston ring that is machined or ground to essentially the level of the coating in the recess. The finished ring also has two 90 degree sharp edges, at least one of which is formed by the machining or grinding operation of the base material. This method is neither described nor suggested by Beyer, Anderson or Ishida, alone or in combination, and as such claim 47 should be allowed.

The remaining claims depend, ultimately, on either claims 39 or 47, and believed to be allowable for at least the same reasons. The dependent claims distinguish over their parent and one another by reciting applicants' invention in greater detail.

The Commissioner is hereby authorized to charge or refund any fee deficiency or excess to Deposit Account No. 04-1061 in the name of Dickinson Wright, PLLC.

Respectfully submitted,

DICKINSON WRIGHT, PLLC

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By: /Robert L. Stearns/
Robert L. Stearns, Reg. No. 36,937
Attorney for Applicant

DICKINSON WRIGHT, PLLC
38525 Woodward Ave., Ste. 2000
Bloomfield Hills, MI 48304-5092
Tel: 248-433-7200
RSearns@dickinsonwright.com